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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/802,605 | 03/17/2004 | Philip Korn | ATT 2003-0076 | 4972 |

26652 7590 04/03/2007
AT&T CORP.
ROOM 2A207
ONE AT&T WAY
BEDMINSTER, NJ 07921

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| EXAMINER |
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VY, HUNG T

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| ART UNIT | PAPER NUMBER |
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2163

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS | 04/03/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/802,605

Applicant(s)

KORN ET AL.

Examiner

Hung T. Vy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. As of entry of the amendment filed on 01/16/2007, claims 1-22 are pending in this application. Upon reconsideration, The Applicant's arguments are not persuasive (see response to Arguments below).

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-22 are rejected under 35 U.S.C. 101 because the claims are directed to a non-statutory subject matter, specifically, the claims are not directed towards the final result that is "useful, tangible and concrete".

As in claims 1,9, and 15, a method of processing a data stream does not produce a useful, concrete and tangible result as set forth in 2106 (IV)(B)(2)(b)(ii), e.g., a set of hierarchical heavy hitter nodes among said nodes being greater than or equal to a fraction of the number of elements in said set of elements is not a useful, concrete and tangible result because the form processing said data structure and what is the final result and useful are still unknown if a set of hierarchical heavy hitter nodes among said nodes being less than to a fraction of the number of elements in said set of elements. Appending to an output join list if those condition a, b, c, d above of the potential descendant list and potential ancestor list are not being available for use in the method of query path pattern matching.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Respect to claims 1, 9 and 15, the last phrase renders the claim(s) indefinite because it is not clear that a) a set of hierarchical heavy hitter nodes among said nodes being greater than or equal to a fraction of the number of elements in said of elements or b) said frequency data of each of said hierarchical heavy hitter nodes being greater than or equal to a fraction of the number of elements in said of elements or c) after discounting any portion therefore attribute to a descendant hierarchical heavy hitter node in said set of hierarchical heavy hitter nodes being greater than or equal to a fraction of the number of elements in said of elements.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claims 1-4, 6-12, 15- 18, and 20-22 are rejected under 35 U. S. C. § 102 (a) as being anticipated by Manku, et al., "Approximate Frequency ", Proc. 28 th VLDB conference, Hong Kong, China, 2002.

With respect to claims 1-2, 9-10 and 15-16, with best understood, Manku et al. discloses a method of processing a data stream, comprising: receiving a set of elements of said data stream; storing a data structure in a memory (see section 2.3), said data structure configured to represent said set of elements as a hierarchy of nodes (see section 5.2), each of said nodes having frequency data associated with one of: an element in said set of elements or a prefix of an element in said set of elements (see section 5.2); and processing said data structure to identify a set of hierarchical heavy hitter nodes among said nodes, said frequency data of each of said hierarchical heavy hitter nodes, after discounting any portion thereof attributed to a descendant hierarchical heavy hitter node in said set of hierarchical heavy hitter nodes, being greater than or equal to a fraction of the number of elements in said set of elements (see section 4.2).

With respect to claims 3-4, 11-12 and 17-18, with best understood, Greenwald et al. discloses incrementing said frequency data of at least one node in said hierarchy of nodes (see section 4.2), compressing said trie data structure by deleting one or more node in said hierarchy of node where said frequency data thereof is less than a predefined threshold (see section 5.5).

With respect to claims 6-8, and 20-22 with best understood, Greenwald et al. discloses a plurality of subsets (see section 2.3), each of the plurality of subsets being associated with one or more elements in said set of elements and associating a counter with each of said plurality of subsets (see section 2.1 or 4.4).

Response to Arguments

6. Applicant's arguments filed on 01/16/2007 have been fully considered but they are not persuasive. Applicant made the following arguments:

a. "The Applicants are only claiming the exemplary condition of processing said data structure to Identify a set of hierarchical heavy hitter nodes among said nodes, said frequency count data of each of said hierarchical heavy hitter nodes, after discounting any portion thereof attributed to a descendant hierarchical heavy hitter node in said set of hierarchical heavy hitter nodes, being greater than or equal to a fraction of the number of elements in said set of elements, as positively recited in claims 1, 9 and 15. What the Applicants do not claim, i.e. an alternate path of the method or process, cannot be a proper basis for a rejection under 35 U.S.C. § 101. Therefore, the Applicants respectfully submit that claims 1-22 fully satisfy the requirements of 35 U.S.C. § 101 and are patentable there under" page 08, first paragraph.

b. "Moreover, the Examiner asserts, similar to the reasoning for a rejection under 35 U.S.C. § 101 stated above, that claims 1,9 and 15 are indefinite because it is unclear what will happen if one of the conditions within claim 1, 9 and 15 are not met. Again, the Applicants respectfully submit that the Applicants are not required to claim each and every possible permutation of outcomes. Applicants only claim an exemplary condition of processing said data structure to identify a set of hierarchical heavy hitter nodes among a plurality of nodes, said frequency count data of each of said hierarchical heavy hitter nodes, after

discounting any portion thereof attributed to a descendant hierarchical heavy hitter node in said set of hierarchical heavy hitter nodes, being greater than or equal to a fraction of the number of elements in said set of elements, as positively recited in claims 1, 9 and 15. Therefore, the Applicants respectfully submit that claims 1, 9 and 15 fully satisfy the requirements of 35 U.S.C. § 112 and are patentable there under. As such, the Applicants respectfully request the rejection be withdrawn.” page 8, last paragraph and page 9 first paragraph.

c. “In contrast, Greenwald fails to anticipate Applicants' invention because Greenwald fails to teach or to suggest processing said data structure to identify a set of hierarchical heavy hitter nodes among said nodes, as positively claimed by Applicants' independent claims. Greenwald only teaches space-efficient online computation of quantile summaries. (See Greenwald, sec. 1.) Therefore, Greenwald fails to anticipate Applicants' independent claims 1, 9 and 15”, page 11, first paragraph.

d. “In contrast, Manku fails to anticipate Applicants' invention because Manku fails to teach or to suggest a method of processing a data stream comprising processing said data structure to identify a set of hierarchical heavy hitter nodes among said nodes, said frequency count data of each of said hierarchical heavy hitter nodes, after discounting any portion thereof attributed to a descendant hierarchical heavy hitter node in said set of hierarchical heavy hitter nodes, being greater than or equal to a fraction of the number of elements in said set of elements, as positively claimed by Applicants' independent claims. Manku only

teaches algorithms for computing frequency counts exceeding a user-specified threshold over data streams that have small memory footprints. (See Manku, Abstract.) Therefore, Manku fails to anticipate Applicants' independent claims 1, 9 and 15" page 12, second paragraph.

The Applicant's argument **a** is not persuasive because the claims recite the exemplary condition of processing said data that do not provide final result as an alternate path of the method or process. Based on the Specification, the Applicant recites an alternate path of the method on page 15, first paragraph. Further, the claims do not provide the tangible result, concrete and useful since the forming processing said data structure and what is the final result and useful are still unknown. Therefore, this is proper basis of a rejection under U.S. C 101. The Examiner had interviewed with the Applicant about the rejection 101 on 03/13/2007, but the Applicant had not responded the correct the rejection 101.

The Applicant's argument **b** is not persuasive because since in specification, the Applicant recites an alternate path of the method on page 15, first paragraph. This is not complete claim; therefore the claim is rendered indefinite.

The Applicant's arguments **c** is persuasive so the rejection of claims 1-4, 6-12, 15-18 and 20-22 by Michael Greenwald et al. is hereby withdrawn.

The Applicant's argument **d** is not persuasive because Manku teaches algorithms for computer frequency counts exceeding a user specifies threshold over data streams. Further, Manku discloses the algorithm selecting that group whose frequency exceeds a certain threshold (*i.e.*, "*select R.Eventype*" (*section 1*)) so it is

inherent that Manku teaches discounting (such as unselect) any portion thereof attributed to a descendant hierarchical heavy hitter node in set of hierarchical heavy hitter nodes by selecting hierarchical heavy hitter node. Therefore, Manku teaches all limitations in claim.

The Examiner had interviewed with Applicant to resolve the 101 problems but the Examiner has received the response from the applicant.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung T. Vy whose telephone number is (571) 2721954. The examiner can normally be reached on 8-5.

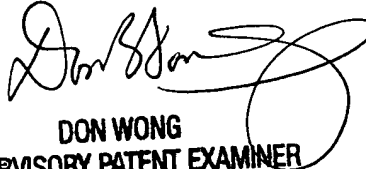
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don K. Wong can be reached on (571)2721934. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hung Vy
Art 2163

March 19, 2007.


DON WONG
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100